

Aviation News

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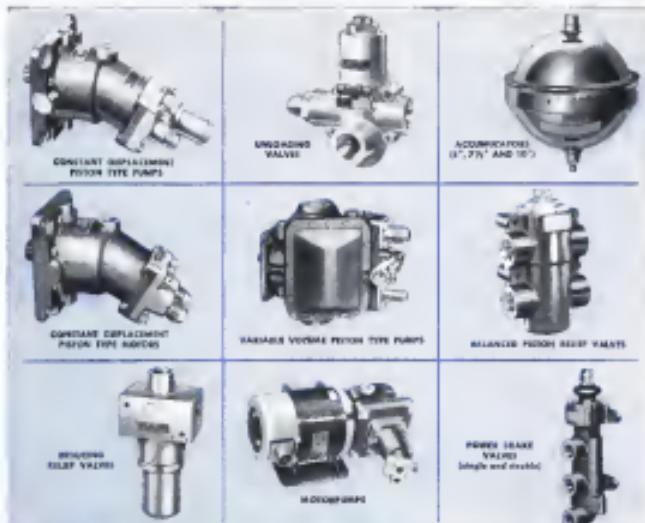
Conference Speakers: Among the discussion leaders at the Joint Air Transport Users Conference last week in Washington were, left to right, E. Merritt Anderson, owner of Anderson Air Activities, Milwaukee, charter operator; Harry R. Playford, president, U. S. Air Lines, Inc., St. Petersburg, Fla., contract freight operator; Joseph J. Mitchener, Jr., executive director, Feeder Airlines Association, Washington, D. C.; Bowman R. Otto, president, Feeder Airlines Association and president, Otto Air Lines, Inc., Newark, N. J., intrastate operator; and Albert L. Zimmerly, president, Empire Airlines, Inc., Lewiston, Idaho, intrastate operator. (Story on Page 7)

Rockets Exceed 43.5-Mile Altitude In Army Tests

16-ft. experimental models designed by Caltech laboratory believed most efficient in world.. Page 9

Considerable Aero Stocks Sold By Firm Officials

SEC compilation shows liquidation was broad in aviation group in December.....Page 16



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THE AVIATION NEWS

Washington Observer



AAF REORGANIZATION—An editorial in *Aviation* is proposing by Gen. Spaatz (story on Page 10) is a plan, scarcely in an untried present world, a situation which friends of aviation in Congress recognize. But those still are no few in congressional legislation who realize the importance of such an air force combined with a broad program of research and development. The program outlined by Gen. Spaatz will require a sizable appropriation, but insurance premium increases are only one, although valuable.

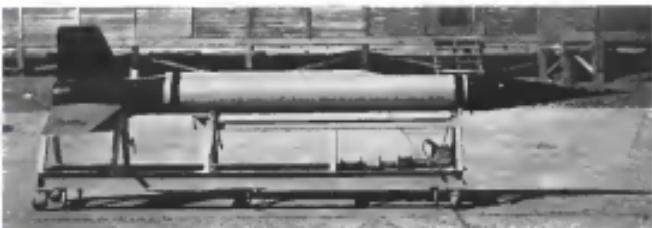
ECONOMY VIEW—Chairman Cannon (D., Mo.) of the House Appropriations Committee said his view frankly on expenditure cutting as Air Forces officers during recent hearings before his committee on additional military cutbacks. He said that "if we are going to make a cutback we would rather, in view of the present state of federal finance, make the mistake of taking too much money away than of leaving too much money in"—a view regarded as more progressive quarters as extremely short-sighted, particularly as far as aviation is concerned.

PROGRESS—Gen. Spaatz' proposal for an Air University is indicative of a changed and in this case far-sighted view of things to come. The Air University would be a post-graduate school patterned somewhat after the Staff and Command School and the Army War College and would train junior officers after West Point. The task of the present AAF, difficult as it is, will be more so, in the view of many Washington observers, unless the Air Force is on a co-equal basis with the Army Ground Force and the Navy. If these

is to be a separate Air Force, then there would have to be more than a post-graduate school—there would have to be a West Point of the Air.

SENATOR AND THE GENERAL—As expected, Sen. Elbert D. Thomas' *Aviation* departure blast at the AAF produced repercussions at the Pentagon Building. In a special statement, Gen. Spaatz said he, as a user during the war, and not as a producer of equipment, was substantially satisfied. What makes the Thomas article important is his position as chairman of the Senate Military Affairs Committee, with which Spaatz and the AAF will have to deal. Thomas' point that the equipment planning of the AAF pointed to the need of civilian authority over this phase of AAF action, as he believed, will be tied in with the proposal for unification of the armed services. The argument has been advanced that a single commander of ground, air and sea forces would have too much power.

AIRPORT BILL—It is practically certain that the long-pending Federal aid airport legislation which has been in a House and Senate conference committee for months will be approved shortly and returned to both houses for final enactment. Internal agreement has been reached on the House method of granting funds to any public agency, rather than the Senate method of channelling funds to both states and municipalities. Senator Owen BREWSTER (D., Me.), die-hard rural advocate, may oppose the conference report on the floor but will be defeated. Sen. Pat McCARTHY (D., Nev.) and Rep. Clever Clegg (D., Calif.), members of the legislature, now are engaged in ironing out minor differences in their respective bills.



One of the Army-Cleghorn models which have moved more than 625 miles. (Story on Page 8)

AVIATION NEWS

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News at Deadline

CAA Defends Repair Policy

In reply to criticism of its plan to withdraw a five-year supply of parts for use in the repair work on its 250 aircraft returned from warplane service, CAA states its program will save the taxpayer about \$8,800,000 over a five-year period. In rebutting the Aeronautical Training Society, leading opponent of the plan, decision that all of the claimed saving of \$154,000 per year except \$59,000 is based on the fact that another government department has turned over to CAA its procurement and parts. A CAA spokesman adds that the cost of spare parts, gear and maintenance is based on Army and Navy service records for the types of aircraft concerned, and the wage rate paid by government. If the work on the 250 aircraft were to be done by private contractors, it would cost the government more than \$382,000 per year. This does not mean that in the past CAA has been paying the industry more than \$200,000 per year as the planes now involved are different. Previous work was not on contract, by regional offices and CAA has no standardized records on the cost. CAA also points out that it will continue to do the work itself, except for major engine overhauls. ATC, however, does not consider this significant as all the aircraft are in new or potentially new condition.

Howard Hughes has purchased for \$600,000 the 200th Super P-38 fighter aircraft ever built as what he is doing best. The purchase from E.I.C. was encouraged by his Hughes Tool Co. of El Dorado, What Hughes will do with the massive structure, which has a maximum gross weight of 15,000 lb, is conjectural. Popular suspicion on the War Craft is that he might convert the building to a model and for movies, although those close to Hughes doubt this. They believe he will adapt the flying best fighter and refrigerated liquor cabinet.

Among other ATC aircraft sales and leases not yet won, was the leasing for five years of two recently built-up of the quantity Douglas Long Beach plant to Kaiser-Frazer Corp. as an assembly plant. The lease is on a sliding scale rising to maximum of approximately \$125,000 a year.

Civil Aviation Administration regional offices have been instructed to issue 25 aircraft approach procedures, and it appears likely that they will increase initial and final approach altitudes in conformance with the ICAO formula.

Precise import and reliable financial cost figures indicate that the 25,000 shares of American Airlines stock recently disposed of by Aviation Corp. were sold at American Carter, a director of American, although he has not yet filed with a report with the SEC.

Conair, Martin and others contemplating use of exhaust jet thrust are conditioned with lapsing of a critical mass problem. Those who have been at military planes using exhaust jet stacks perceive the noise level extremely annoying. The present plan of leading the exhaust through curving, or ducts, to the trailing edge of the wings does not appear to be a solution. Some consideration is being given by design engineers in a jet pipe extension which will trail the wing at some distance. The speed limit of jet thrust is so important to commercial transport planes that reg. engineers are giving the sonic boomerance attention.

Euclid has decided against production of a passenger version of its well known C-82 Paket, for an indefinite period.

Its purchase of 160 surplus service type (the total supply at \$100,000, G-2), was clarified by Paul Martin, Los Angeles charter operator, of the Mount Holyoak Haggard Aircraft Co., which will operate the 500-wt surplus load. The firm will sell engines, instruments and auxiliary accessories scavenged from the surplus planes purchased, and will market spare bushes and fittings to those inclined to buy them. Associated with Martin are J. W. Heath of Bremerton, Tex., hog snarler, and L. B. Haggard, Bremerton collector.

Industry Observers



Acceptances by the services on February 175 warplanes involved 115 Army and 36 Navy craft, with a total airframe weight of 1,014,000 lbs. January acceptances were 145, weighing 1,168,200 lbs. Army models comprised 7 B-29, 3 North American F-82s, 3 Bell XP-59s and 35 Cessna C-45Gs. 4 Bell Lockheed P-80As, 1 Fairchild C-45As, 1 Convair C-45Gs, 4 Lockheed P-80As and 35 Cessna P-51As. 14 Army transport planes (Navy acceptances) 2 Martin PBM-1s, 4 Douglas DB-7s, 5 Grumman F4F-3s, 1 Goodyear F-60, 1, 21 Convair Vought PV-1s, 24 Grumman F6F-3s.

Aircraft modification companies assert some indication that the Navy will begin releasing its surplus in large supply of Lockheed Lodestars. At last report, the government surplus agency had disposed of all except 20 of the Army's 100 Lodestar planes of this model, and it was expected that the final 20 would be brought aboard as soon as they are released. While the demand for all twin-engine surplus aircraft continues heavy, the Lodestar has been popular for modification both as a 14 passenger transport and as an executive plane. A Lodestar bought from surplus for \$22,000 to \$25,000 can be modified for airline use for \$80,000 or less. E. P. Shad's executive modification cost responses from \$80,000 to \$110,000 or more, and include such fittings as mahogany trim, cedar interior, upholstered and refrigerated liquor cabinets.

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What Airline Executives Say About the New Martin Transports



C. R. (Red) Morris, President
Pennsylvania Central Airlines

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Capt. Eddie Rickenbacker, President
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The operators have made a long and close study of planes being offered by manufacturers and the one conclusion that we have come to is that the model that Martin has brought the best of.



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The perfect airplane for our type of operation. Delivery of the Martin 202 in 1947 will enable us to replace the DC-3 with 5-passenger planes because our needs have changed.



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Continuing our policy of maintaining the best and latest equipment available on a non-stop basis, we purchased Martin 202s in 1947. The new service is well received by the travel agents. Standards are changing, long distance flights.



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NUMBER 18

Aviation News
McGraw-Hill Publishing Co., Inc.

March 16, 1946

Uncertified Operators Discuss Steps Necessary to Expansion

75 leading figures in field examine prospects at Joint Airport Users Conference, sponsored by National Aerospace Association; see growth despite current confusion and problems.

By WILLIAM KROGER

Despite confusion as to their exact legal status and a multiplicity of problems inherent in a young industry, operators of non-airline, non-scheduled and intrastate air services see themselves as being the medium through which will be attained the long-delayed goal of linking every possible community by air.

At the Joint Air Transport Users Conference last week in Washington—the first chance for general exposition of the uncertified operators' thoughts since the CAB hearing on regulation of non-scheduled aviation—about 75 outstanding figures in the field discussed objectives and pointing the way toward their realization. The conference was sponsored by the National Aerospace Association.

Booking One New Equipment. —Like the tankers' owners, uncertified operators are banking on new flying equipment to reduce operational costs. Objective, however, is not competition with the tankers. Expansion of the air network it was pointed out, would in fact be an auxiliary to tankers.

Other operators, for example, cannot compete with tankers in transport if it was stated by E. M. (Bill) Anderson, owner of Anderson Air Airlines, Milwaukee. In his state he said, the average floatplane base operator runs a four-plane single-engine aircraft at an average charge of 20 cents a mile. With new, more expensive equipment and maximum utilization of 1,000 hours per year, Anderson expects to reduce that charge.

Costs Have Many Angles. —However, reduction of direct flying costs in itself will not bring changes with unshielded open.

bus and rail fares, it was emphasized by several speakers.

Don C. Peterson, technical director of the Aircraft Industries Association, asserted that manufacturers in the past five years have increased aircraft to such an extent that direct flying costs have been cut in half. On the other hand, he said, ground and indirect costs are increasing at such a rate they threaten to wipe out the economics of new planes.

Kennedy Agrees. —A similar thesis was put forth by Albert L. Kennedy,

united president, Empire Airlines, Inc., Louisville, Idaho, who feels it encouraging that some communities expect to make airport owners pay full toll for user fields. He feels there is justification for granting free use of airports to short-haul carriers until such time as they are on their feet financially.

Albert F. Betzel, Washington attorney for several carriers, expressed the belief that this year there may be as many as 12 federal laws enacted by CAB.

Needs Outlined. —On the basis of his extensive experience in the operation of a successful short-haul intrastate airline, Kennedy highlighted his financial aspects.

The smallest short-haul airline will need a minimum capital of \$500,000 to finance and operate, he stated, adding that an operator will need a fleet of four 14-passenger planes. Each plane, operating 8 hours daily, should develop passenger



FREE-FLIGHT TUNNEL:

An unusual airplane model with a fixed auxiliary aerial projecting ahead of the leading edge of the wing, is shown under test in the free-flight tunnel at NACA's Langley Field, Va., laboratory. The free-flight tunnel, only one of its kind, has a 22-ft. octagonal test section which projects within a 40-ft. sphere, permitting the remotely-controlled models to fly freely under their own power in a wide range of glide or climb angles. The model is controlled by a "pilot," shown standing in "cockpit" with unshielded open.

revenue between 25 and 48 cents per airplane mile.

The proposed expense should not exceed 48 cents per mile which would have a gain of from 25 to 30 cents per mile to be made up by mail in order to give a profit of about 5 cents per airplane mile.

I Had Far See Necessary—Mail may only be necessary to get faster mail over the initial hours in the opinion of Joseph J. Michauer, Jr., executive director, Pan Am Airlines Association.

Such an expenditure would not be without precedent, as he said, "even though many people seem to look with horror upon anything which involves governmental subsidy." He assured that annual rates return a profit to the Post Office and has paid off the total expenditure.

Dauchworth Stresses Safety—In the face of a warning from Joseph B. Dauchworth, director of CAIA's Safety Bureau, that it is the obligation of every pilot and operator, and not of the government, to assure primary responsibility for safety, operators agreed that the safety factor probably is more important to charter services than to airfares.

Michauer stated that a charter operator who has even a minor accident—resulting in no personal injury—is his own best way to drive away all business for as long as six months.

Fires Accident Trend—Dauchworth



DC-3 JATO TESTS:

H. A. Thomas (standing), chief of CAIA's South Region flight engineering and factory acceptance division, and **E. E. Nelson**, maintenance manager and chief of flight of Aerjet Engineering Corp., examine instrumentation of the company's Jato rockets on the undercarriage of a DC-3. Tested recently by CAIA certification at Ontario, Calif., a Jato-equipped DC-3 cleared a 50-ft obstacle in 2,600 ft with one engine out and (AVIATION NEWS, March 21)

Part 42 Action Due

Part 42 of the Civil Air Regulations—safety regulations of non-scheduled carriers—will be promulgated by CAB without any further racing, manipulation of the calendar, said Joseph B. Dauchworth, director of the Safety Bureau, told the Joint Air Transport Users Conference last week. Lack of personnel, and the pressing need for the rules, was the reason.

Dauchworth said it will not be before summer that Part 42 will go to the Board for action, and the Board will allow sufficient time between adoption and effective date to give the industry a chance to review and comment, and give CAIA time to set up machinery to administer the regulations. It is extremely unlikely that the suggested limit on single-engine equipment will be adopted.

Centralization Seen—Although there are perhaps as many as 500 air service operators functioning today, it appears that when the cargo plane of that potentially great business finally finds its way to the hands of a relatively few large carriers, no companies.

Harry Pflloyd, president of U. S. Air Lines, Inc., Daytona, Fla.—safely a contract brand operator—said, "why under franchise? Maintenance is given up in this type of operation in order to provide regularity of service, he said. The contract carrier cannot wait for overhead and other type of servicing.

Pflloyd stated his own company is contemplating the establishment of an express overland and transoceanic line which would cost between \$150,000 and \$600,000.

American-MCA Merger Opposed By Goodkind

Control of Mid-Continent Airlines by American Airlines would be in conflict with fundamental principles of the Civil Aeronautics Act, according to CAB Public Counsel Lewis W. Goodkind.

In a brief ariplane denial of the proposed merger, Goodkind stated that the absorption would create a body integrated combination of systems, cause a substantial diversion of traffic from other carriers and result in noncompliance of Mid-Continent's North-South traffic to American's East-West schedules to the detriment of consumers by compelling lines.

proposal of economic regulations that has been put forward before was rejected.

Altitudes of More Than 43.5 Miles Reached in Army Rocket Tests

Designed for Ordnance Department by Caltech jet laboratory head, 16-ft. experimental models probably are most efficient ever produced, give U. S. designer research position

By SCHOLER BANGS

Altitudes of "at least 230,000 ft."

(143 miles) have been reached by slender, 16-ft. rockets designed for Army Ordnance by Dr. Frank J. Malina, acting director of the Jet Propulsion Laboratory of California Institute of Technology.

They probably are the most efficient projectiles of their type ever built, and may be expected to give the United States a dominant position in upper atmosphere research.

Performance Restricted—How much higher the rockets may have gone above the altitude determined by radar tracking, is conjectural, and Ordnance officials insist that details of performance and construction temporarily remain classified.

Although the German V-2 rocket is credited with having reached an altitude of 60 miles in trajectory flight, the American 16-ft. jet rocket, which apparently will have more and propellant load may be considered as a "stepping stone" toward rocket performance far exceeding the results attained by other nations.

Specifications Given—It would approximately 1,000 lbs. has a length of 10 ft. from its nosecone to its nozzle, and propellant load may be considered as "stepping stone" toward rocket performance far exceeding the results attained by other nations.

The rocket has three of its original rocket engines and with little guidance provided and very limited financial means, progress was slow. Through a period of several years effort was concentrated on the testing of a multitude of solid and liquid propellants.

The War gave the research its needed stimulus, and under sponsorship of the Army Air Forces the Jet Propulsion Laboratory was organized at the California Institute of Technology by Dr. von Kármán, Dr. C. B. Millikan and Dr. Malina.

Agreement Still Lacking on Cost-Plus Contracts

Although settlement on financial war contracts showed a jump during January—with 15,000 contracts involving \$2,769,866,800, while the Navy and Air Force had only 10,000 contracts involving \$16,000,000—on publication of the annual report of CIOG (AVIATION NEWS, Feb. 21) it was

indicated that "the cost-plus contracts still lagged."

Contract Settlement—In California there were unexecuted agreements for approximately 42,000 contracts still待定 to be settled, but when claims have been filed against almost 17,000 of these.



In Flying Position. A "WAC" Corp. rocket stands ready for flight at the Caltech jet laboratory.

the rocket shows ready for flight. The rocket is slender and stands vertically on a launch pad. A man in a white shirt and dark trousers stands to the right of the rocket, looking towards it. The background shows a large, skeletal metal structure, likely part of the Caltech jet laboratory.

Cost-Plus Settlements—During the month, the War Department settled 16 cost-plus contracts with canceled amounts of \$415,880,300, while the Navy settled the first such contracts involving \$16,000,000. On publication of the annual report of CIOG (AVIATION NEWS, Feb. 21) it was

indicated that the bulk of the cost-plus contracts were in the field of aeronautics.

High School Students Enlisted In Missouri Airmarking Program

Senior classes are urged to provide flying aids as commemorative gifts; more than 100 communities expected to be marked before May 15 as result.

By ALEXANDER McSUREY

Instead of the usual gifts, dried beans, patches, dried beans, patches, the usually left as commemorative gifts, the graduating classes of many Missouri high schools this spring will provide class memorials in the form of airmarks for their communities.

More than 100 Missouri communities are expected to be marked by senior high school classes before May 15, as result of efforts of the Missouri State Department of Education.

Conducted By Wright—The campaign, conducted by Eugene V. Foytakoff, head of the aviation division of the department, and Leo C. Hansen, state airmark engineer, has enlisted the efforts of the Missouri high school students by letters to their class presidents and school superintendents. It was suggested that the marker be placed on the roofs of the schools if possible.

To "sell" the project to the class, the following reasons for airmarking

are given:

- It would teach civic cooperation.
- It would create something for the community.
- It would advertise the town to others.
- Neighboring towns would know the town is alert.
- The towns with airmarked buildings will be shown on a map to give wide distribution by the State Department of Resources and Development.
- An aerial photograph of the airmarked town will be taken.
- It will aid in raising down payments at flying.
- It will be a lasting memorial to the class.
- It will show that youth in interested in aviation.
- It will help boost Missouri, for the project is state-wide.

Hansen suggested every class agreeing to undertake the project with an airmarking kit containing

Gas Refunds May Be Overlooked

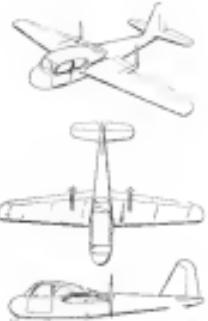
Many private fliers, it is believed, are failing to obtain refunds on state motor fuel taxes paid on gasoline used in planes. Highway Travel Service, "For the private flier," New York concern, has issued a circular to its network which may be obtained from any station, if the flier submits his receipts for gasoline purchased with his refund claim.

Arizona, 3 cents; California, 3; Colorado, 4; Connecticut, 3; Delaware, 4; Illinois, 3; Indiana, 4; Iowa, 4; Maryland, 4; Massachusetts, 3; Minnesota, 3; Missouri, 3; Nevada, 4; New Hampshire, 3; New Jersey, 3; New York, 4; Texas, 4; Washington, 3; Wisconsin, 4; District of Columbia, 3.

Other Arrangements—New Mexico will refund on gasoline amounts of 100 gals. (50¢ if purchased on lots of 50 gals. or more at one time, and if claim is cashed within four months from date of purchase).

Virginia refunds 5 cents per gal. if fuel purchased at the state and used outside or 3 cents if fuel is purchased and used in the state. West Virginia refunds are paid only on quantities of 25 gals. or more.

Gas Provide Form—When Highway Travel Service, Atlanta, Niles Feb. 1 began operations it expects to provide its clients with necessary forms and directions to apply for refunds from the various states listed.



ACRONIA FAMILY PLANE

Peter Johnson, Detroit aeronautical engineer and consultant to Aeromac Aircraft, Middlebury, Ohio, has designed parts on a 5-place pusher-type plane design which is three-stage changeable. The triplane retractable landing gear design appears to be powered by twin pulse gas turbines driving propellers. Contours of the nose resemble closely the contours of the nose section of sketches of the proposed Aerocar single-jet pusher. Patent application was filed Aug. 2, 1945.

complete instructions, a package of carbureted parts forming parts of letters of CAA-approved size (10 ft. high) spelling out the name of the town, and other necessary letters, numbers and arrows to give latitude and longitude in degrees and minutes, an arrow pointing to true north and a second arrow pointing to the nearest airport, with the number of miles to it.

The students place the letters together on the gymnasium floor then carry each letter in roof. After shaking around the letters, and removing if they fit, the entire with yellow or orange aircraft-marking paint. In case the roof is weathered, the black, they outline with letters, centered and arrow with black asphalt paint on a 1% in border.

Club Aid Suggested—It was suggested that local civic organizations might contribute cost of paint and brushes, and that the girls of the class might provide coffee and sandwiches the day the work was

being carried on.

The class president was asked to send in a report on completion of the work to Hansen. Cooperation of civic clubs in the project was asked in after letter.

Praytell and Hansen say the biggest problem in the campaign is that the hearty response has come from smaller communities where airmark benefit to private flyers probably greatest than the spring may hope to see. Missouri, the best airmarked state in the country.

CAA Officials Urge More 'Gripe Sessions'

An intensive local "gripe session" for private flyers and airport operators is expected to be one outcome of the recent conference of eight CAA regional private flying specialists with Administrator T. P. Wright and his Washington staff.

Following a report of William H. Berry, Ft. Worth (Report Begged), an account of the recent forum held in his region, it was recommended that additional localized meetings to sound public opinion as regards of private flying be held in the other regions.

Other Suggestions—Listed—Other recommendations by the specialists:

- Use of low-power, short-range, inexpensive radio transmitters at small airports, enabling the operator to increase safety of operations and facilitating gathering of weather information for pilots.
- Installation of a distinctive, inexpensive Fisher light signal, at

small airports, which can be seen in the daytime, to guide pilots to fields. (This will be studied further by CAA headquarters.)

Preparation of Materials—A publication for the private flyer, including a publication pointing out local flying hazards in various sections of the United States; a booklet on prevention and operation of flying clubs, and a booklet on altitude, wind directions before it could be certified as a one-place plane for civilian use but it is expected that the plane eventually will be certified, subject to modifications, as an approved type.

more airports, better planes, simpler regulations, and better aviation training.

Other Topics Discussed—Other subjects included: lenienting the use of the private plane; expansion by plane manufacturers of the charter service for private flying; the charter service and dealers; uniformity in sales and service; equal treatment of private and scheduled planes by traffic controllers, and aviation training for veterans.

John H. Getz, assistant to Administrator Wright, in charge of personal flying development, conducted the session. Other specialists attending, in addition to Berry, were Roland Smith, New York, (Report 1); Carl W. Clifford, Atlanta, (Report 2); Charles E. Con, Jr., Chicago, (Report 3); Lester B. Latrell, Kansas City, (Report 8); Marshall E. Bessant, Santa Monica, Calif., (Report 4); Wiley P. Wright, Seattle, (Report 7); and Virgil D. Stoen, Anchorage, Alaska, (Report 8).

Surplus PQ-14 Gets First CAA Flight Test

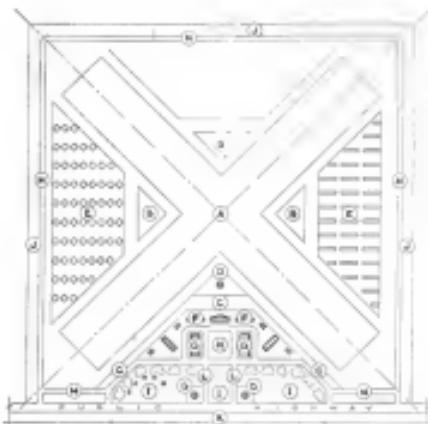
First CAA flight test on a surplus Cessna 180-hp PQ-14, conducted at Bush Field, Augusta, Ga., indicated that the radio-controlled target plane would require some elevator modifications before it could be certified as a one-place plane for civilian use but it is expected that the plane eventually will be certified, subject to modifications, as an approved type.

State War Assets Corp. has given



NEW CONTINENTAL ADJUSTABLE-PITCH PROP:

One two-bladed hydrodynamic-control "Skypower" propeller, developed by Continental Aviation & Engineering Corp., shown on an 85-hp Globe Swift. On the Swift, Continental says, the new prop cuts fuel consumption nearly 25 percent, increases cruise rate of climb more than 27 percent, and permits extensive fuel savings. The prop is expected to be standard equipment on several lightplanes. Courtesy drawing shows flexible expandable rings, actuated by an 85-hp engine and controlled by jury-rig valve from instrument panel. Sliding collar between rings controls blade-pitch through linkage.



CAA AIRPORT PLAN:

Proposed layout for a personal plane airdrome, taken from the new CAA publications, *Airport Buildings*, shows how plane storage areas would be set aside from other operations. Symbols are: (A) landing area, (B) plane parking, (C) engine, (D) plane service station, (E) personal plane storage, (F) administration buildings (including operations, sales and maintenance), (G) garage buildings (gasoline, aircraft oil), auto service station, etc.), (H) car parking, (I) perimeter road, (J) perimeter parking, (K) service area, (L) access road, (M) perimeter road. The booklet may be obtained by requesting a preprint copy of *Planning an Airdrome* by writing to Office of the Superintendent of Documents, Government Printing Office, Washington, D. C.

other larger planes higher priorities for CAA flight tests, it probably will be a matter of months before the largest plane is tested and modifications made.

More Interesting Possibilities.—The plane has been regarded as an interesting possibility for a fast one-place personal plane since it has electrically retractable tricycle landing gear, a cruising speed of 140 mph, 450-mile range and 17-000 ft. ceiling.

While no reports have been received of sales of surplus PQ-1's in this country, seven of them have been sold in Manila. The AAF reports that approximately 1200 of them were built, divided approximately equally between the Army and the Navy.

The CAA has approved the station as one of a one-plane place of an easier. Color slides—available

alone, the PQ-8 which has fixed landing gear and a 30-hp Franklin engine, and which is in service.

National Flying Farmers To Convene in August

Aug. 1-2 has been set as the date for the first annual convention of the National Flying Farmers Association. It was announced last week. More than 500 farmers who are becoming aviation and agribusiness are expected to attend the session which will be held at Oklahoma A & M College, Stillwater, Okla., at the same time as the Oklahoma Flying Farmers conference and the college's annual Farm and Home Week.

Herbert Graham, national executive secretary and some 34 lightplane manufacturers will be invited to display their latest models

License Change Due

Change in private pilot training requirements is expected to be made effective shortly by CAA. Administrator T. P. Wright in recommendation of his regional private flying inspectors.

It is proposed that only five of the ten hours of dual instruction required for a private pilot be required from a rated instructor, and not more than four of these hours to be on the first solo. This would make it possible for the student pilot to get five hours of his dual time from his friends who are rated pilots but still be in the center of judgment as to his ability to solo and his ability after solo, to a rated instructor.

State Aero Association Projected By Coloradan

Organization of a Colorado Aero-motors Association is being undertaken by Robert Donner, temporary chairman, P.O. Box 1177, Colorado Springs, he has announced.

The association is proposed as a non-profit organization to promote safe non-scheduled private and commercial flying, fairer a state-wide system of airports, airways and traffic control, coordination with national plane manufacturers to obtain aviation facts to assist aviation and expand utilization of state aviation facilities, encourage aircraft manufacturers to transportation and oppose excessive regulation of non-scheduled commercial flying by federal authorities.

AAF Veteran Planning Baltimore Seaplane Base

Applicants to establish a seaplane base for private flying and charter operations, within five miles of the heart of Baltimore, has been filed by James B. McDermott, Jr., former AAF B-17 pilot, at Catonsville, Md. He has leased a 380- x 380-ft. lot on the south shore of the Middle Branch, two blocks from a Baltimore streetcar line and proposes to build a cedar block hangar connected to the water by a wooden ramp.

In a letter he has said for three "runways" of 3,000 to 4,000 ft. and if necessary, one take off and landing through the draw of the Harford street bridge to gain almost undisturbed "runway" on the Patapsco River.



Ambassador
of world trade

Pan American World Airways, veteran ambassador of trade, now makes one market place of the world—bringing the wares and wants of many nations together on treacherous seas and prosperity

—with Lockheed Constellations powered by Wright Cyclones

WRIGHT *Aircraft Engines*

Wright Aeronautical Corporation

Paterson, New Jersey, U.S.A.

CERTIFIED **WRIGHT**
MADE IN U.S.A.



Push-button defrosting for planes

AS SOON as winter comes through the A.B.F. Goodrich refrigerated wind tunnel entered the Jack Frost effect on the propeller model above.

The exaggerated ice former on the hub isn't as terrible as it looks, but fingers of ice, creeping up the blades, pose a big hazard in flight for years. Use it right, sir, and the blades recover lost of power, but increase fuel and operating vibration.

To a pilot, the smaller planes look a lot better. It's a propeller equipped with a B.F. Goodrich development called an electrically heated propeller. It is shown here being tested (the wire is part of the testing equipment, they are not on the blade in flight).

With short shorts on his propeller blades a pilot can defrost them in simply 15 seconds. Defrost a refrigerator, and here's quicker. The pilot just reaches a switch and electric current begins to run through the blades, which return off the shot, which makes off ice.

B.F. Goodrich equipment protects many other parts of the airplane from ice. But look at the De-Jon, which cracks off all the ice on wings and tail, keeping those surfaces clean and smooth for safe flying. De-Jon was developed and is made exclusively by B.F. Goodrich

Year of ice fighting experience see back of this equipment. It means a safer, more comfortable flight of you by today or when you fly tomorrow. **B.F. Goodrich Company, Aircraft Division, Akron, Ohio**

Elegance on Highway
B.F. Goodrich
FIRST IN RUBBER

51 New Distributors Listed By Bellanca

Bellanca Aircraft Corp., New Castle, Del., has named 51 distributors for the new Cruisair Super. G. M. Bellanca, president, and H. A. (Bert) Herlihy, Jr., sales manager, have announced. The company has deposits for over 1,800 airplanes. The distributors are:

W. H. Pfeiffer, Long Beach, Calif.

John Whitman, Portland, Ore.

W. Murphy, Seattle, Wash.

W. Murphy, Denver, Colo.

W. Murphy, Atlanta, Ga.

W. Murphy, Dallas, Tex.

W. Murphy, St. Louis, Mo.

W. Murphy, Chicago, Ill.

W. Murphy, Boston, Mass.

W. Murphy, New York, N. Y.

W. Murphy, Philadelphia, Pa.

W. Murphy, Cleveland, Ohio.

W. Murphy, Toledo, Ohio.

W. Murphy, Indianapolis, Ind.

W. Murphy, St. Paul, Minn.

W. Murphy, Milwaukee, Wis.

W. Murphy, Des Moines, Iowa.

W. Murphy, Kansas City, Mo.

W. Murphy, Wichita, Kan.

W. Murphy, Denver, Colo.

W. Murphy, Portland, Ore.

W. Murphy, Salt Lake City, Utah.

W. Murphy, San Francisco, Calif.

W. Murphy, Los Angeles, Calif.

W. Murphy, San Diego, Calif.

W. Murphy, San Jose, Calif.

W. Murphy, Sacramento, Calif.

W. Murphy, Fresno, Calif.

W. Murphy, Bakersfield, Calif.

W. Murphy, Modesto, Calif.

W. Murphy, Sacramento, Calif.

W. Murphy, San Luis Obispo, Calif.

W. Murphy, Santa Barbara, Calif.

W. Murphy, San Francisco, Calif.

W. Murphy, San Jose, Calif.

W. Murphy, San Francisco, Calif.

FINANCIAL

Considerable Aero Stocks Sold By Firm Officials in December

Compilation released by Securities and Exchange Commission shows liquidation was broad in aviation group and airlines also were widely sold, apparently at advantageous market levels.

There was considerable selling of aviation shares among company officials during December, 1945, a recent compilation released by the Securities and Exchange Commission shows.

In the light of recent developments, selling appears to have taken place at advantages much less.

Fairchild Sells 14,800 Shares—
Sherman N. Fairchild remained to
liquidate his holdings, selling 14,800
shares of Fairchild Regulating &
Aviation, retaining 148,769. Through
the 30th Land Co. he owns as addi-
tional 161,188 shares. Also, he has
possessed a total of 1,800 shares of
Fairchild Camera & Instrument
during November and December,
bringing 79,276. The 30th Land Co.
was 26,000 shares at that compa-
ny, and 304 shares of Pan
American Airways, of which he is a
director, retaining 26,780 shares
at the carrier.

J.-M. Léblanc and his wife disposed of a total of 9,688 shares of Consolidated Vulcain common, resulting between them, 6,125 shares

EAL Split Draws Speculators

The four-part oil proposal for the eastern coast of Eastern Air Lines has added speculative attraction to its shares. Actually, however, the stockholders will receive nothing which he did not have before. On consummation of the split, the identical equity now represented by one share, will be reflected by four.

The prime purpose of stock split-ups is to effect wider distribution and interest in a company's securities. For example, the average investor is more inclined to buy shares at \$10 than at \$100.

Administrators in Fund — The general aspects of air transportation have caused previous stock dividends or splits to work out

Country and period	Number of cases
U.S.S.R. 1940-44	1,000,000
U.S.S.R. 1945-49	200,000
U.S.S.R. 1950-54	300,000
U.S.S.R. 1955-59	400,000
U.S.S.R. 1960-64	500,000
U.S.S.R. 1965-69	600,000
U.S.S.R. 1970-74	700,000
U.S.S.R. 1975-79	800,000
U.S.S.R. 1980-84	900,000
U.S.S.R. 1985-89	1,000,000
U.S.S.R. 1990-94	1,100,000
U.S.S.R. 1995-99	1,200,000
U.S.S.R. 2000-04	1,300,000
U.S.S.R. 2005-09	1,400,000
U.S.S.R. 2010-14	1,500,000
U.S.S.R. 2015-19	1,600,000
U.S.S.R. 2020-24	1,700,000
U.S.S.R. 2025-29	1,800,000
U.S.S.R. 2030-34	1,900,000
U.S.S.R. 2035-39	2,000,000
U.S.S.R. 2040-44	2,100,000
U.S.S.R. 2045-49	2,200,000
U.S.S.R. 2050-54	2,300,000
U.S.S.R. 2055-59	2,400,000
U.S.S.R. 2060-64	2,500,000
U.S.S.R. 2065-69	2,600,000
U.S.S.R. 2070-74	2,700,000
U.S.S.R. 2075-79	2,800,000
U.S.S.R. 2080-84	2,900,000
U.S.S.R. 2085-89	3,000,000
U.S.S.R. 2090-94	3,100,000
U.S.S.R. 2095-99	3,200,000
U.S.S.R. 2100-10	3,300,000

American Stock Sold.—In an interesting transaction American Corp appears to have sold 22,500 shares of American Airlines common, privately in New Mexico, 1945. This is the first sale in connection with the Civil Aeronautics Board order to dispose of the bulk of such holdings. American Corp now retains 262,500 shares of American.

Stock Options.—After the authorization of a special Management Common stock Union Airlines has now learned to make these to key officials. The stock is sold to selected officials at their face value, which is about one-half of prevailing market price. After about five years this stock is convertible into the regular common on a share-per-share basis.

Allegations—Latest—the stock allotted United States officials are as follows: R. F. Aborn, 1,000; C. N. Blumer, 300; Harold Craig, 2,000; N. H. Hayes, 500; S. V. Hall, 1,000; J. A. Herold, 2,000; R. W. Ireland, 1,000; D. F. Maguire, 1,000; H. E. Nease, 1,000; S. P. Morris, 700; J. W. Newby, 1,000; and R. E. Plumb, 1,000. Such amounts aggregate 13,700 shares out of an authorized issue of 350,000.

Among the air line leases, G. T. Baker, president of National, sold 6,680 shares, retaining 141,370 Harry S. Parkin bought 2,762, leaving 6,684 shares. Alan W. K. Jacobs, Jr., director, gave away and sold a total of 480 shares, retaining 1,999. **F-Oster Airline Sales**—Great Lakes president of Northwest, sold a total of 4,900 shares during November and December, leaving 4,188. Alan S. Pettrey, director, sold 188 shares, 35,888. L. B. Radcliffe, director of Eastern, sold 393, keeping 12,396 shares of that carrier.

Significantly, L. H. Dwmelkoffer bought 3,180 shares of Western Air Lines. Bruegger has total holdings in the company to 14,400 shares.



A GREAT LUBRICANT
FROM A GREAT MANUFACTURER

With the advent of war, the long-experienced Mid-Continent rotary soon developed D-X AVIATION OIL and became one of the leading suppliers to the United States and Allied Nations. Today, this superior lubricant is available to commercial aircraft owners. Its characteristics include maximum resistance to carbon, sludge and lacquer formation, maximum power performance. Its enduring film strength affords complete lubrication for fast-moving parts, and is persistent under the widest of atmospheric temperature ranges. Suitable for large and small aircraft. Your inquiry invited.

MID-CONTINENT PETROLEUM CORPORATION
TULSA, OKLAHOMA

PRODUCTION

Efficient Use of Propellers Seen At Speed Well Into Sonic Realm

Leading American and British engineers say radical changes in design, including blade tip sweepback and two-speed engine reduction gearing, will make it possible.

Efficient use of propellers at speeds well into the sonic range is forecast by leading American and British engineers as the result of changes in design as well as those now being effected in aircraft and powerplants.

The combination of blade tip sweepback, constant speed and two-speed engine reduction gearing assures maximum propeller efficiency of more speeds far in excess of those now operating.

Distortion Will Be Cut. The use of constant and counter-rotating designs will reduce distortion on high-power engines as to little as one-half that required by single units. Present indications are that bellows-type blade construction will dominate and solid steel, duralumin and wood will be used.

John Stuck, NACA supervisor of compressor-blade research, recently displayed examples of that radical propeller design. He disclosed that whereas the conventional three-blade constant speed design now in use on commercial and military aircraft has an efficiency of 80 percent at 200 mph and only 60 percent at 300 mph, due to compressibility losses at tip and shank, a new model design by NACA research reveals an efficiency of 90 percent at 300 mph and 88 percent at 400 mph.

Gas Is Important. Importance of the gas can be appreciated readily by the fact that an improvement of only 1 percent in propeller efficiency will pay for the overall cost of the airplane during its service life.

This remarkable gain in efficiency is achieved by the use of a thin, wide blade extending directly into the root at only 12.5 percent thickness and possessing a large spanwise aspect ratio with heavy sweepback produce efficiencies of more than 80 percent at even higher speeds.

Most Efficient At Low Speeds. Propeller experts have revealed

that this form of propulsion delivers more than three times as much power at subsonic speeds as the turbo-jet. Propeller designs now being tested are capable of developing 5 lbs. of thrust for each horsepower of engine output at 300 mph as compared to 1.5 lbs. of thrust for each horsepower developed by the turbo-jet at the same speed.

L. G. Fairhurst, chief engineer of Bristol Ltd., British propeller manufacturers, in a recent paper presented at a conference on propellers, said it was possible to save one-half the weight of the propeller by the substitution of the aircraft gas turbine. Pointing out that the gas turbine's operating cycle is 80 percent of its maximum (as compared to about 50 percent in the piston engine), Fairhurst revealed a general opinion that two-speed engine reduction gearing is a necessity in the near future.

Air Flow Is Important. On the subject of ex-speed and counter-rotating, he indicated their importance to smooth air intake flow for "prop" units and the value of their transonic characteristics as a control problem. Tests have shown no efficiency, maneuverability or efficiency, with even-unloading operating characteristics.

The inherently greater efficiency of the pusher installation is receiving serious study and that design has been rendered even more efficient by the introduction of the "propjet" unit, which requires large *shock* air entrance ducts in the wing leading edge. The latter design also would permit the installation of larger engines, thereby making possible the use of round propeller shanks. For greater strength, with a pusher spanwise extending to the 15 percent blade thickness point, would combine great hub strength with maximum blade efficiency.

Advantage Seen. Fairhurst believes that, based on present knowledge, the propeller will prove superior on designs using up to 50,000-hp piston engines, operating at up to 40,000 ft. and flying at speeds of up to 500 mph. Whereas fighter types have now surpassed these conditions, he believes that these conditions lie before and the below



Propeller Test: Use of a helix (helix) or combination of two intersecting helices for a planned research answer to a propeller problem, which has not been solved mathematically, is a questionable research study at the Langley Field, Va., NACA laboratory. The helices are immersed in a cylinder filled with water (left) through which an electrical current is then passed. By measuring the voltage at different points about the helix, which represents the pitch angle of the blades of a propeller through the use of the researches' obtain a pressure measurement of the pressure existing around the actual propeller.

that, the problem of flutter is much closer to precise. Another advantage of the helix is its adaptability to "hot blade" anti-icing systems, a problem of importance with even-unloading operating characteristics.

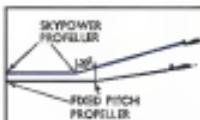
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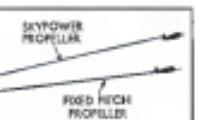


NOW—A HYDRAULICALLY OPERATED CONTROLLABLE PITCH PROPELLER FOR LIGHT PLANES

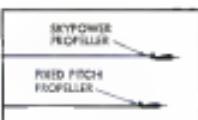
The Continental Aviation and Engineering Company operates four Skypower engines of piston planes, on a small single-seat aircraft having a gross weight of 1,000 lbs. The engine has a variable pitch propeller. Below, notice the high and low pitch.



HIGHER TAKE-OFF — Use of the Skypower propeller reduces 200 ft. of run on take-off by 100 ft. or more, provides per lb. fuel on 100 ft. of run, smaller tanks.



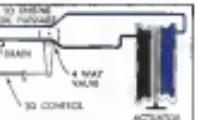
DECREASED RATE OF CLIMB — Total weight of Skypower propellers include no weight of propeller, so more power per lb. is available for climb.



THE SKYPWER PROPELLER bridges higher engine or greater fuel economy, as well as new fuel economy, in all mass-produced planes. New license for your flying.



SIMPLE PITCH-UP CONTROL — Use of this simple pitch-up angle for take-off and climb, high pitch angle for cruising.



SIMPLY EASY HYDRAULIC ACTION — Use of this simple pitch-up angle for take-off and climb, high pitch angle for cruising.



SKYPWER AIRPORT ALTIMETER — Special Skypower blades are designed for high performance. Available in all sizes. Many applications to local engine altitude for maximum performance.

HERE'S WHY YOU'LL WANT A CONTINENTAL AVIATION SKYPOWER PROPELLER ON YOUR PLANE

For startling new performance — the kind you probably dream about — you'll want a Continental Aviation Skypower Propeller on your plane. It's the first hydraulically operated controllable pitch propeller for light aircraft in production. It saves shorter take-offs, higher ceilings, increased rate of climb. It's simple in design and operation, low in price, and easy to install and maintain. Now in production for use with Continental A-65 and C-90-45 engines. Write to Continental Aviation and Engineering for literature.

out that it will be several years before adequate airfoils will develop more efficient design conditions.

Both noted engineers point out the great benefits to be gained by mutual cooperation between propeller manufacturers and airplane designers. Such problems as vibration cause reduction, education systems control strength and overall efficiency are best solved by coordinating of these three major components in the design stage.

Trans-sonic Speed Problem Outlined

Greater problem now facing aircraft designers is the existence of aircraft able to get through the range of speed of from about 850 mph to 950 mph. Wellwood E. Beatt, engineering and sales vice-president of Boeing Aircraft Co., discusses.

Aeronautical know-how of the values which govern airflow at transonic range of speed, he points out, and speeds somewhat above that of sound, control stability and more normal air flow are required. But in the transonic range, "air flowing around hydrodynamic shapes now in use radically changes its nature, loss of lift, resultant divergence effects, loss of lift, large increase in



Canadian Lightplane The Noranda, tandem aircraft being built by Hurry Aircraft Ltd., Honey Creek, Ont., for personal or instruction use.

drag and loss of stability and control."

Research Needed — New rules governing aircraft behavior at trans-sonic speeds must be found. Basic studies and applied to shapes which will either resist the divergence effects found in that speed range or be able to penetrate it so that the effects have no time to build up to the danger point.

This will involve a tremendous amount of testing to find laws and analysis of the consequent difficulties. The work must be undertaken separately for every part of the aircraft, and the relationships between one other than the transonic results must be integrated.

Days, weeks, and possibly years will pass. Beatt says in the Boeing Magazine, "But at some point in the investigation, testing and analysis the answer will have been found."

Canadians Develop Device to Replace Oxygen Tanks

A machine to change liquid oxygen into compressed gas during flight and to eliminate the disadvantage of heavy steel cylinders of oxygen in bombers was invented late in 1944 by two University of Toronto scientists. It was announced at Toronto this week, fitting another wartime invention off the secret list.

The machine weighed only 150 lbs each and supplied the equivalent in oxygen of that carried formerly by 400- to 450-lb steel cylinders. The invention is expected to have a practical application on passenger aircraft, eliminating the use of steel oxygen tanks. An announcement of the invention was made in the *Flight* magazine, April 1, 1945.

Invention, Toronto, by Prof. George Smith, who with Prof. F. J. Fry tested their apparatus in a BACAT Douglas-built Dakota flying across the Atlantic from Montreal in November 1944.

New Lightplane Being Produced in Canada

A new two-passenger high-wing monoplane the Noranda, is being produced in Canada by Hurry Aircraft Ltd., Honey Creek, Ont. It has been fully approved by the Canadian Department of Transport for 75-, 85- and 90-hp engines and for dual flaps and wheels.

Designed for personal or instructional use it sells for \$2,800 (Canadian) with a 50-hp Continental engine, plus a permit rating for Standard equipment including a wheel undercarriage, but for a maximum weight of 1,100 lbs maximum speed of 95 mph, and cruising range of 450 miles. Takeoff speed is approximately 42 mph, stallling speed is 36 mph. It is reported to take off in 215 feet. Passengers are seated in tandem.

Construction — The Noranda has a stiff box wing of wood with fabric covering. Fuselage is of steel tubing with fabric cover.

It is equipped with barometric, oil pressure, oil temperature, air speed, altimeter and altimeter instruments. Gross weight as wheels is 1,421 lbs. It will carry two passengers and 50 lbs of luggage.

Goodyear in Production On Farm Food Freezer

Development of Goodyear Aircraft Corp. has taken an important step with production of the first farm freezer to be built under Goodyear's contract with Wilson Refrigeration Inc. This new freezer, bearing the trade name "Zodiac" has been manufactured under a contract in about \$1,000,000.

The freezer is designed chiefly for small houses and other establishments requiring large food freezing and storage capacities and will be produced in 15- and 20-cu. ft. sizes.

GENERAL . . . "square deal for both flyer and supplier"



September 16, 1946



L. G. MASON
President
AVIATION SUPPLY CORPORATION

Mr. L. G. Mason, Vice Pres.
The General Tire & Rubber Co.
Akron, Ohio
Dear Mr. Mason:
I am sure you are aware that General Tires have the square deal
for both flyer and supplier.

At your distributor here in Atlanta, we
have found a real satisfaction to be assured conditions
that the General Tire values and advantages are still
will deliver strict safety service and success to our
customers.

Today, we know your problems up to a point
and with recognition of your unique part in the
getting of selected aircraft tires, we are prepared to assist
you in every respect. We are pleased to offer you
constant support and have designed our advertising
material which encourages you and makes it to naturally
serve aviation.

We would like to be able to tell all
of you that there is no better buy for aviation
than General Tires and we are sure that this General Tire
Tire is the best tire for aviation. We heartily recommend the
use of General Tires at the outstanding expense dead or the
aviation hereabouts.

Very sincerely
L. G. Mason
President
AVIATION SUPPLY CORPORATION



Aviation Division - THE GENERAL TIRE & RUBBER CO. - AKRON, OHIO

AVIATION SUPPLY CORPORATION
McGraw-Hill Building
Baltimore, Maryland

Futura Plane Wellwood E. Beatt, vice-president in charge of engineering and sales for Boeing Aircraft Co., and collaborator in the design of the *Futura* aircraft, the superfast and streamlined type which may be the plane of the future. It's only a paper plane, but Beatt sketches the ultra-high-speed aircraft of the future very resemble this by no means.



HELICOPTERS—HOW SOON?

This Army XR-8 helicopter and its military successor, designed and produced by Kelllett, are helping us prepare to produce advanced helicopters to fit the needs of commerce and industry. Success of our aircraft manufacturing experience equip us to understand these needs, and to approach the helicopter's future confidently.

No longer is the helicopter flying "flockety" quizzical. It is being demonstrated every day. Any well designed helicopter is completely at home flying *forward*, *backward*, *upward*, taking off and landing safely in open land or water space of reasonable size—hovering moreover within striking distance of the ground. The same helicopter travels across country at speeds greater than your car can hold on an express highway.

The day may not be far away when helicopters, developed from present models, will perform many anxiety-solving, time saving tasks. Aerial surveys and patrols, crop dusting, repair and relief missions, mineral and petroleum exploration and the transportation of passengers or goods will offer countless opportunities made job easier by helicopter.

Kelllett's immediate objective is to develop helicopters with adequate range, capacity and economy to meet emerging requirements. This is a goal worth reaching. We intend to attain it as rapidly as possible.

KELLETT AIRCRAFT CORPORATION, UPPER DAIRY, PA.

KELLETT
HELICOPTERS

Salomon Stresses Need Of Lighter Jets, Better Fuel

Two most important factors which will extend the economic advantage of the jet engine is the opinion of Ben T. Salomon, chief engineer of Ryan Aeroplane Co. His further refinement of the gas turbine engine and development of new super-jets of high thermal energy in relation to weight.

"The two principal possibilities open to science to improve jet propulsion are what they are today: improvement of the installed powerplant weight and reduction of fuel requirements in pounds," he told the San Diego section of the Institute of Aeronautical Sciences.

• **Cuts Gas Turbine.** "The lighter powerplant weight is with us now in the form of the gas turbine, both in jet propulsions and propeller driven forms," he added. "Because that type of powerplant is still in the development stage, its present disadvantages of power thermal efficiency and higher fuel requirements will overcome in the near future."

Salomon said that perhaps of even greater importance is the fact that the gas turbine will operate on almost any substance as a fuel which can be taken through a nozzle and which will burn on air.

Speed Limitations

Speed used in the subsonic range has been determined to achieve in the supersonic range. The point of supersonic rotation has been resolved. They predict that supersonic speeds will be possible only in an military craft where economy is of secondary importance.

The cost of speed, which increases markedly in the transonic range, suddenly shrinks to almost prohibitive proportions in the supersonic range. NASA suggests point out.

• **Example.** "In discussing the economics of a transonic flight from 30,000 ft. at cruising speed, M. C. Stanley, of the Flight Research division points out that about 10,000 additional tons of gasoline would be burned if the speed were raised at 30,000 ft. to a flight of a speed of 470 mph. The fuel cost would increase. The quantity of fuel although the speed would be less than two and one half times as fast.

SPECIAL AIR SERVICES

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Nine Uncertified Operators Organize To Promote Business

Anounce high safety and maintenance standards will be established to forestall criticism; joint cargo, packaging and sale policies are being considered.

Nine federally uncertified carriers and passenger operators have organized the Institute of Air Transportation, Inc., as a cooperative, non-profit organization. Representatives of the members varies from Lockheed Lodestar to Douglas DC-4's totaling 75 planes at present with 30 more on order.

Taking action to forestall criticism of unstandardized operations and maintenance by some uncertified carriers, the association's steering board chairman, Captain O. C. Johnson, of Seattle, Washington, "For a maximum of safety, standards above the government's levels are being established and a network of inspection and maintenance points throughout the country will be sponsored."

• **National Skyway Freight Corp.** Inter-corporate non-scheduled cargo owners, agreed a contract carrying return loads for three weekly Los Angeles-New York air freight flights. Return shipments of associated cargoes principally garments and furs, have been restricted in the East with Gilbert Air Freight, shipping consolidations. Popularly identified as the "Flying Tiger Line," the company now operates five planes and has shifted its headquarters from Long Beach Municipal Airport to Los Angeles Municipal.

The company this month will resume global shipments from



WESTERN OPERATOR'S FLEET:

Three of the Boeing 247-D's operated by Zimmoir Airlines on the Northwest which recently was taken

over by Empire Airlines. Both firms are headed by Bert Zimmoir.

PERSONNEL

Paul H. Burbank Named
UAL Cargo Sales Head

Paul H. Burbank (left) has been named manager of cargo sales for United Air Lines, Inc., with the responsibility of all cargo sales and promotional activities along the traffic-



sales department. Burbank was formerly vice-president manager for the air cargo department. Mr. George Rader (right) has become regional manager director for United Air Lines' cargo division. Rader, formerly a personnel director for Lend-Lease, has been promoted to United as a flight captain at San Francisco.

E. O. Smith (photo), PCA supervisor of maintenance and overhaul, has a new job as

assistant to the executive vice-president of the airline. Successor to the airline's managing director in the management group is Harry D. Fink, formerly his assistant, while Paul Humpf, previously supervisor of PCA's maintenance training program, becomes director superintendant.

Robert W. Flaming has joined the Washington public relations staff of Pan American Airways, following his release from the Navy. Just prior to leaving the service, Flaming was a special assistant to the commanding officer of the Navy's C-47s, associated with William J. McMurtry, assistant vice-president of Pan Am.

Donald S. Gull has been appointed director of publicity for National Airlines, Inc. Gull will have charge of the entire airline system with headquarters in Newark, N. J. Recently a news editor for Gull, he was manager of public relations for Wright Aeronautical Corp. Curtiss-Wright Corp. and Brewster Aeronautical Corp.

James M. Cox, Jr., vice-president of the James M. Cox chain of newspaper and radio stations, has been elected to the board of directors of Eastern Air Lines, Inc. Cox has been serving with NASA.

Charles DeWall, formerly personnel manager for the Civil Aviation Agency, has been appointed manager of employment for PCA and will have full responsibility for employee recruitment and personnel records DeWall formerly was with Glenn L. Martin Co., as assistant to the personnel director.

Thomas W. Hammill, Jr., former director traffic manager at Butte, Mont., has returned from military service and will resume his duties as Northwest Airlines director traffic manager at Spokane. With B. D. Brasfield will remain three assistant district traffic manager.

A. R. Thomas is the new general manager of the plant operated by the Jacobs Aircraft Engines Division of the Goodyear Tire & Rubber Co. Successor to the late President Harold B. Kroter, Thompson has resigned as assistant manager of the division.

B. L. Lewis, formerly superintendent of reliability operations for American Airlines, has been appointed manager of operations at New York for the domestic division. Lewis joined American when Universal Airlines in 1939. Walter B. Johnson, Jr., has been named eastern regional cargo manager for American's replacement. Robert K. Tracy, who has been appointed general freight manager, Johnson has been on military leave with the Marine Corps.

Marshall H. Jones, Capt., recently discharged from the Navy, has been named assistant to R. L. Anderson, supervisor of engineering for Chicago & Southern Air Lines. W. C. Conant, Jr. (right) has joined



CAA APPOINTMENTS

Donald R. Harvey Coffi is the new personnel officer for the Civil Aviation Agency. Coffi has been with the Human Relations division as assistant administrator for aviation, having succeeded Bruce Ulman who has resigned to join TWA, and William R. Kline (right) has been named assistant administrator for federal airways (Aviation News, March 11).



Edwin L. Zee (photo) has been appointed chief engineer of the Budd Corp. He has been assigned to Eds from the Glenn L. Martin Co. He has been an engineer and a test engineer manager. He helped design the all-weather aircraft maintenance of light aircraft built by the Budd Manufacturing Co.

Stratford W. Rice, who has served with Eastern Air Lines for more than 30 years, recently was appointed manager of passenger representative offices. T. M. H. (left) has been appointed Eastern sales representative for Boston. He was formerly assistant chief agent at LaGuardia Airport.

Major Gen. John F. Curry, former commanding general of the Western Technical Training Command, has been named executive director for the state of Colorado. The new post has been created by the legislature in a special session.

R. H. Paffen, former industrial relations manager of the Buffalo plant of Curtiss-Wright Corp., has been appointed industrial relations director of the Cornell Aeronautical Laboratory, recently donated to the university by the Curtiss-Wright Airplane division.

Brig. Gen. Erik H. Nelson has retired from the Army to become technical advisor to Swedish International Airlines. A member of the Army Air Forces during World War II, Gen. Nelson's World War II assignments included all maintenance arrangements for the first B-52 squadron in India and China.

Chicago & Southern, as successor to Chicago T. & T. Miller, director of research research. Prior to joining the AACF, Nelson was with the Civil Aeronautics Board in Washington as assistant to the secretary of the Board.

TRANSPORT

General Use of Radar By Airlines Considered Still 2-3 Years Away

Experts say public is misled as to its current commercial adaptability, see much development necessary before it can be applied safely and successfully.

By MERLIN MICKEL

The war facts of radar have led to a public misconception of its immediate adaptability for commercial airline use, in the opinion of specialists in the field, and another two to three years will elapse before it can be installed universally for airline traffic control and safety application.

The question why this war-born device is not in use on the airways is being asked more and more frequently of airline officials by persons outside the industry. The best answer, according to the Air Transport Association, is simply that radar has not been perfected for commercial use.

Test Underway.—The commercial operators are intensely interested in radar, and the industry has been granted the right to use it in the vicinity. One of the best evidences that it will be primarily a military function lies in the fact that the War Department intends to spend several million dollars on radar and all-weather flying studies during the coming fiscal year.

ATA, CAA, CAA and some individual airlines are seeking radar tests. Among these Americans, which for nearly a month has been flying a C-47 fitted with APG-10 radar equipment. The ship is to be brought to Washington soon for commercial flights with CAA and CAA officials.

Detector Thresholds.—General: weight of this equipment, weighing 150 lbs., is said to be its detection of thunderstorms. Hence, it is about 100 miles under ideal conditions, with a normal maximum of half that distance.

Plane radar, which readily detects a shoreline or other major feature of the terrain, has not reached the point where it can pick up a mountain peak out of a range, for example, and CAA operations officials feel that it has not been developed

sufficiently for identification of incoming craft.

Two possibilities are being studied in this connection, involving use of color or code letter combinations on the scope to identify the plane as well as give its location.

Confidence Crisis.—Some indication of the work yet to be done may be gained from last month's recommendations by the CAA (Aviation News, Feb. 11) to eliminate all-weather flying. Fifteen manufacturers and representatives, but the statement of the meeting was that while marked progress had been made, more experience was necessary and no single system was yet ready for official adoption.

National Criticized In Tatt CAB Order

"Wild" motion charged as aiding in loss of map control of Caribbean-American Airlines.

Stamps including National Airlines for "wild" motion, by "wild" motion" violating the Civil Aeronautics Act, and indirectly worsened other carriers against similar offenses. CAB has advised National to avoid itself of all control over Caribbean-American Airlines' Panola Airlines carrier.

The fairly-sobered opinion also disapproved an agreement providing the use of Nassau's personnel and equipment in Caribbean's operations.

Stock Rule Cited.—The Board declared "the conclusion is inescapable" that National has held the power to control Caribbean's use



CARGO CONVERSION FOR AMERICAN:

Interior of the first C-47 converted at the Glenn L. Martin plant for commercial use. It was delivered to American Airlines.

May 25, 1946, when 33,000 shares or more than 10 percent of the latter are also to be turned over to the U. S. carrier to return by before delivery of a smaller number of National shares.

Further, the Board continued, George T. Baker, National president, expressed willingness to take the risk of not obtaining prior approval of the transaction from the Board, even though such action might be deemed a violation of the Civil Aeronautics Act.

Other Findings—Aside from finding the control agreement illegal, CAB saw a lack of integration between the two carriers which precludes approval of the acquisition or not creating a "monopolistic transportation system." The Board also revealed a disconcerting view exchange, indicating that the Caribbean shares, especially those of Pan American Airways, Caribbean president, were over-valued in the transaction.

National was granted 80 days to comply with terms of the Board's order dissolving all relationship with Caribbean.

Northwest Contracts For 10 Stratocruisers

Because first domestic carrier to order four Boeing 707s, American is signing for eight.

Northwest Airlines last week became the first domestic carrier to purchase Stratocruisers when it signed a \$13,000,000 contract with Boeing Aircraft Co. for 10 of the long-range double-decked aircraft. The announcement came as American Airlines was completing negotiations with Boeing for purchase of eight Stratocruisers (Model 367) costing \$10,000,000 for use in New York-London flights and other overseas service.

Completion of the American contract would bring total Stratocruiser purchases to 42. Pan American Airways previously having bought 20 and British International Airlines 10.

100 Services—**Northwest**—**Contracts**—Northwest's new plane commitments now aggregate \$22,000,000 including \$7,000,000 for 15 DC-4s. Delivery of the Stratocruisers early in 1947 would enable Northwest to establish non-stop, coast-to-coast non-stop flights, company officials say. The Boeing also would be used on Northwest's proposed Northern Pacific route to the Orient, now awaiting CAB decision after invi-



Northwest Orders "Stratocruisers" Northwest Airlines will make its first trans-Pacific coast-to-coast service early in 1947 when Boeing will deliver the first of ten Stratocruisers ordered last week. Binder says, "Our nonstop transcontinental schedule, Northwest intends to offer 24-hour Stratocruiser service from New York. Shanghai of CAB approves a proposed Northwest Pacific route to the Orient, which has already received the favorable recommendation of Board members."

and been recommended by Board members.

Ready To Begin—Cecil Shuster, president and general manager of Northwest, states that operations along the Pan American-Pacific-Hong Kong-Macau route will begin with DC-4s within a few months after the Board's approval with Stratocruisers added as they become available. Stratocruisers could fly New York-London flights in 35 hrs. 45 mins. and the same coast-bound route in 28½ hours compared with pre-war air time of 1½ days.

In Northwest's operations, the Stratocruisers' interior will be arranged to seat 70-105 passengers and will be capable of conversion to sleep 18 persons in double berths and eight in single berths, besides 45 in seats. American would have a similar providing berth space for 48 passengers or 40 double seats.

Airlines Flew 94,267% Of Schedules in '45

Domestic airlines in 1945 earned new peak loads of passengers, mail and freight. Total 94.26 percent of scheduled mileage. CAB statistics show 100 carriers increased revenues 1945 to 217,489,381, 38.87 percent above 1944; average passenger miles to 3,490,384,376, up 24.14 percent, mail ton miles 83,260,938, up 27.63 percent, and revenue ton miles 13,333,000, up 38.67 percent.

American Loads—Average plane

load in 1945 was 17.33 passengers, 432 lbs. of mail and 21.9 lbs. of express. Passenger load factor dropped slightly from 80 percent in 1944 to 79.5 percent last year. American flew the most domestic passenger miles, 86,219,311, followed by United, 80,879,699, and TWA 513,846,895. Except for Hispano, United reported the highest revenue passenger load factor 83.60 percent.

United Kingdom-Baltimore Service Dropped By BOAC

British Overseas Airways discontinued its five-year-old daily mail service between London and Kristen and Baltimore last week after completion of 380 trans-Atlantic crossings.

The service Boeing 314s, a total in the service will be used to step up Baltimore-Bermuda flights to the weekly Trans-Atlantic service crossings between Montreal and Britain.

UAL Speeds Up Service

United Air Lines set almost four hours down as East Coast-Pacific Northwest service March 16 when it phased DC-4s on a daily round-trip between New York and Seattle-Tacoma. At the same time a daily DC-4 flight was added to the Los Angeles-Berkeley and Los Angeles-San Francisco runs. Use of DC-4s also is expected to shorten Pan American Airways' Manila-Baltimore and New Orleans-Baltimore schedules shortly.

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Feeder Airline Applicants—The Forgotten Men

THE CIVIL AERONAUTICS BOARD's delay in permitting establishment of a responsible Nation-wide feeder airline system not only is denying the public the advantage of air service in scores of communities. It is costing the several scores of applicants in the eleven feeder cases inestimable expense in lost business quota apart from the heavy costs already paid for preparing for and appearing in the regional hearings. The last feeder hearing opened Sept. 1, 1944.

Two of the eleven regional feeder line proceedings have been held. The hearing date for the eleventh will be set shortly. Examiner's reports and arguments have been completed on ten cases. These cases have been submitted to the Board. But not one feeder line demand has been issued. Status of each of the remaining cases is shown in this box:

Hacky Mountain Case—Hearing held, arguments completed now in the hands of the Board.

West Coast—in the hands of the Board.

Florida—in the hands of the Board.

Northwest—in the hands of the Board.

North Central—Hearing held, examiner's report issued Feb. 28.

Texas-Oklahoma—Examiner's report in preparation; expected soon.

Southwest—Examiner's report expected shortly after the Texas-Oklahoma report.

Mississippi Valley—No estimate as to probable date of report.

Great Lakes—No estimate as to date of report.

Middle Atlantic—No estimate.

Arizona-New Mexico—Date of hearing to be set shortly.

Central Washington opinion is that the decisions proposed will be issued in the general order in which the cases were held. It is known that since the Board members returned from Bermuda they have concentrated on domestic rather than foreign transportation matters. Terms of the entire CAB staff has quickened with the completion of the Bermuda conference, which took such a toll of time and effort to the neglect of national problems.

This speed-up is encouraging of course, but prospects appear dim that it will be reflected in any appreciable output of documents for a matter of months. If the Board does not soon step up its pace, it would be an option indeed who could forecast the operation of as many as three centralized feeders by mid-summer of 1947, the peak of the second post-war travel season.

At the present amazing rate of development of air transportation, another year set-back can represent incredible loss. Yet it appears that only a few applicants can look forward to as little deformation as that.

An additional note is that there has been a remarkable number of scores of independent passenger and freight carriers throughout the country in the last six months alone. The press contains news of these companies as operating under a federal certificate of convenience and necessity. All of the planes are needful

by CAA but they are not under CAA air carrier jurisdiction. Many of the interstate carriers are attempting regular schedules. How many will go into bankruptcy, or prove to be unsafe public carriers can be determined only by time. That some of the better operated lines are surviving the present cannot be denied. Some will continue, but without rate payments as a basis for their present operations, at most with a slow return of profits, and without resources for contingencies unless they come from "sloggs." Many will inevitably go broke losing stockholders' money, some of it from the communities served. This will do no good to such communities. In the tradition of this world network of private enterprise some companies will weather the economic storms. The News wishes them well.

But in the meantime, what about the feeder lines which already have shown their interest and their financial ability to progress through the labyrinth of CAB procedures? They are helpless to start operations, or make definite plans to start them. Fearing to increase prestige in the CAB by entering the non-scheduled or interstate fray, which undoubtedly is a base of legal uncertainty, they watch the listing newsmen invading their territories.

We are running an opportunity to get people started to use of aircraft at a very opportune time," one executive writes the News from a company which participated in a regional case and awaits a decision. "Also there are a lot of pilots who should be put to work, and in general an expansion of transport flying should take its place as a necessary part of our reconstruction situation. We are becoming a new era in which everyone is expecting to be a jet age of flying, but because of those delays in the granting of franchises we are beginning that era for most of us smaller cities and towns without air transport service."

"Of course, we can see why it is taking so long. In Board hearings we can see it is taking so long. Each of us applicants has to participate in a hearing, and each of us may not necessarily be successful. It is necessary for each member to investigate thoroughly every problem that comes up before we stand, and there is no doubt that many of these problems are very complicated now. Through we can see why the delays are necessary. I think it is in order to examine the damage the delays are causing."

The News publishes the extract above from an official within company layers due to CAB delays can only guess at the kinds of damage because despite these known facts, there is a sample of a somewhat and somewhat optimistic attitude toward the Board. Vague positive public charges and querelles and published faults directed at individuals, always are more interesting reading, of course. But we submit this case of the long-waiting feeder airline companies in the hope that it may suggest to the Board the necessity of resuming its agenda to accelerate nationwide feeder line development.

Barney H. Woods

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